
XV. AN EARLY AGRICULTURAL PERIODICAL.

BY MARY G. LACY,
*Librarian, Bureau of Markets,
United States Department of Agriculture.*

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The *Annals of Agriculture*, edited by that sagacious observer, Arthur Young, is doubtless thought of by many people as the first appearance of agriculture in the field of English periodicals. In the preface to volume one of the annals, however, the editor says:

The idea of a periodical publication as a general channel for information relative to Agriculture, is at least a century old. Houghton, in King James the Second's reign, published a paper for this purpose twice a week, and continued it with little interruption to the beginning of Queen Anne's.

This statement from so eminent a writer as Arthur Young induced a careful examination of Mr. Houghton's husbandry and trade—an examination yielding delight upon every page, from the preface by Richard Bradley, the well-known professor of botany in the University of Cambridge, to the "Epitome of the 19 volumes. A farewell," with which the work closed.

This modest little periodical, issued twice a week during a part of its career and once a week for the remainder, was "esteemed as valuable as choice manuscripts" in 1727, when the scarcity of these papers and the reputation which they had gained made it advisable to republish them. Richard Bradley collected a set of the single papers of which he said that there were probably "not in all our English libraries ten complete sets" and was instrumental in having them reprinted in book form. In 1728 there was a second reprinting, without change. Richard Bradley's preface to the second printing of this pioneer among agricultural periodicals is entitled "An introductory discourse to Mr. Houghton's Husbandry." It provides eight pages of sound agricultural doctrine as well as delightful reading. After a few pages devoted to advice as to fertilizers, the advantage of draining wet fields, and directions as to the best methods of doing so, the author says:

But it is not only by rich manure or labour that an estate may be enriched; it may be done another way, viz, by examining the soil and its depth in every field; and likewise by having a due regard to the situation; and then to assort

to every soil such sorts of plants as are naturally the produce of such soils, will best thrive upon them. But this has been constantly overlooked by our English farmers, who generally imagine that ground is not good unless it will produce good corn or good grass; but give me leave to expostulate with them a little. Have we not grains and plants enough that will turn to as good profit as corn or grass, and much more, too?

And a page further:

And then again, if lands are dry, there are plants, which one can cultivate on them, which will turn to good account; as for instance some of the French grasses, which our author [Houghton] gives many instructions about; but the best of them all is the Lucern which one may cut three or four times a year, and will last a long time; so that there is no ground however poor or unprofitable it may be thought to be but will produce something beneficial to the farmer with no more than common trouble. * * * Nor can I find it necessary to let any land lie fallow, since I have observance that every different plant draws a different nourishment; then by shifting the sorts one may have a continued succession of crops without exhausting the strength of the soil, or losing of time. * * *

From this able presentation of the theory of rotation of crops, Bradley passes on to a statement recognizing the relation of markets to the value of crops and of land.

But there is one thing more which ought to be considered in the improvement of land; and that is, to judge what will be most acceptable at the neighbouring markets; or what convenience of carriage there may be had for things of the greatest burden. For tho' we may have good crops that would be valuable at one place, they may not have worth at another; or, if they will fetch the same price in every market, yet the difficulty in carriage to one place more than another, will make an alteration in the farmer's profit, as may be very easily calculated; and then it appears that two pieces of ground in different places that are equally good, and bring crops of the same goodness, yet if the markets do not equally demand them, one piece is worse than another.

This "Introductory discourse to Mr. Houghton's Husbandry, by R. Bradley" is placed in the front of what we are led by the binder's title to consider volume one of the "Collection for improvement of Husbandry and Trade." The date of the first paper in this volume is March 30, 1692, whereas the first paper in volume 4, according to the binder, is dated September 8, 1681. The heading or title of this issue of September 8, 1681 is "A collection of letters for the improvement of Husbandry and Trade," the date of the latest communication in the volume being November 14, 1683. It appears probable, therefore, that these "letters" dating from 1681-1683 are the forerunners of the regular issue of the "collection" which began in 1692 and ran through September 24, 1703. That nine-year gap between the two series presents an interesting field of study for the bibliophile. We will not attempt to enter it here, however, but will confine ourselves to the actual contents of the reprinted volumes as they have come down to us.

In the earliest, or "letters" volume, 1681-1683, there is an interesting opening statement by John Houghton himself which he calls a "Preface by way of a letter to J. B. D. D., S. R. S." in which he speaks of the revival of the "committee for agriculture" of the Royal Society of which he had the "honour to be a member" and states that his design is to—

* * * publish such papers as shall cause his kingdom to be so well husbandry'd as to exceed not only the United Provinces but also what on another occasion you were pleased to stile the garden of the world, Barbadoes. And feeling what the husbandman is concerned for, is the *materia prima* of all trade, and that the finding of a vent for his commodities is as necessary to his end, as it is to know the ways of tilling, planting, sowing, etc. * * * therefore I design not only to give instructions for that end, but also the best accounts I can meet with, how they [fruits, corn, grain, pulse, etc.] may be advantageously parted with which will necessitate me often to treat of such things as more strictly come under the second head of my title, viz. *trade*."

On the succeeding page there is the following:

A catalogue of the books in the library of the Royal Society, relating to agriculture.

WORTHY SIR, It will I think by all be granted that the art of *agriculture* hath not been a little improved by the use of books, and more it may, were it well known what are written of the subject: at present I will give you a list of what I find in the catalogue of our library, and hereafter of what I meet with elsewhere.

Adriana (Presbyter) Carmina de Venatione.
 Apitius Gaelius de re Coquinaria. lib. X.
 Aristotelis Historia Animalium.
 Baptiste Jo. Ferrarii de florum Cultura.
 Di Bonardo Richezze del'Agricoltura.
 Cato (M.) de re Rustica.
 Columella (L) de Cultu Hortorum Carmine Script.
 Di Crescentio (Pietro) Agricoltura.
 Forest Laws, by Jo. Manwood.
 Herbarium Ling. Germ.
 Hortorum Cultura, per Lucium (Jun.) Columellan.
 Macer (Philoseph.) de natr. & virtut. Herbar.
 More (Sir Tho.) Utopia.
 Oppiana de Ventione piscium.
 De Ro. Piscibus.
 De Animal. Industria (per Sym. Grynaeum)
 Di Tatti (Giov.) Agricoltura.
 Terentius M. Varro Agricultura.
 Tobae Aldimi descripto Planter in Horto Farnesiano.
 Herbarium (Antiq.) Anglice scriptum. M. S.
 Junii Mod. Columel. rei rustic M. S.
 Herbarum nomina & Vires (Carm. Hexametro) M. S.
 Johannis de loco Frumentario pars secunda. M. S.
 Evelyn (Jo.) Sylva.
 Bacon (Sr. Fr.) Sylva Sylvarum.
 Evelyn (Jo.) of Gardens.
 Cotton (Ch.) Planters Manual.

Evelyn (Jo.) Philosophical Discourse of Earth.

Hughes (Will.) Complete Vineyard.

Icones et descriptiones	{ Sicilae Melitae Galliae & Italiae	per Paul. Boccon.
Plantarium		

M. Malpighius de Bombyce.

Johnson de Animalibus.

Christoph. Merret Pinax verum Nat. Britannicar.

Anatomy of Vegetables, by N. Grew M. D.

Two Herbals.

These are what I have chiefly taken notice of; the author adds naively, It is possible among so many books (upwards of three thousand) I may have overlooked some, but I think none that are material.

It is obviously impossible within the bounds of a single paper to fully analyze the contents of these four remarkable volumes. We can only hope like a good showman to point out some of the most enticing of the contents so that the reader's curiosity may be whetted to examine for himself what must, for lack of space, remain undisplayed.

Dr. Robert Plot, Oxford professor of chemistry, secretary of the Royal Society, keeper of the Ashmolean Museum, and author of the Natural History of Oxfordshire, was a frequent contributor and was always interesting. In a contribution dated November 24, 1681, he deplores the lack of interest shown by one locality in the crops or practices of another and adds:

Much less are the grains of one county known in another, witness the sort of wheat called red-stalked wheat, sown plentifully about Oxford, which though endued with the excellent quality of seldom or never smutting, a conveniency which best pleases the chapman of any, yet either hath not been heard of, or is wholly neglected in most other counties. Nor less ignorant is the husbandman of long-cone wheat, notwithstanding its not being subject to lodging or being eaten by birds, and its constant freedom from that epidemical (I had almost said also incurable) disease of corn, commonly called the mildew, three inconveniences sometimes so fatal that by one, two or all of them he loses his crop; whereas, had he known these grains and would have taken the pains to procure, and have used them, how free might he have been from all of these inconveniences, wherever his grounds had been liable to them.

There follow similar observations about a little-known barley that has—

Many times been sown and returned to the barn again in two months' time * * * whence it plainly appears that could you make yourself the happy instrument of communicating such notices as these to all the parishes in England and so effectually as to get them put in practice, for that is the greatest work (though one would think indeed men should make but weak oppositions against their own emoluments) you would (for ought I know) deserve as much of the publick as the founder of Christ's-hospital, and all its benefactors, and receive the acclamations and applauses of all great men as the result of so great an achievement.

The same spirit of wonder at the failure of husbandmen to profit by the experience of others is voiced by Adam Martindale, of Cheshire, in a letter dated May 18, 1682, about improving land by marl. He says in part:

I labour under great discouragements, in reference to that little which I know, from the conceited surley humours of people that will not be beaten out of their old roads, by the most powerful discourses bottomed upon reason, and backed by the experience of wise and faithful persons. To what else can it be ascribed, that the speaking trumpet (so notably fitted for the criers in great courts, and proclaimers of things in tumultuous markets) should find little more entertainment than to be ridiculed in plays? Or (to come nearer the matter) what else can be the reason why the great advantage got by our neighbours in Staffordshire or Worcestershire by sowing of clover, can scarce prevail with any of us in Cheshire or our neighbors in Lancashire, to sow an handful upon the very same sort of land? Nor the vast incomes by marling land in Lancashire and Cheshire, tempt our neighbors of other counties before mentioned, to make a little search for that great natural improver marle.

After a full, though conservative statement as to the sorts of land likely to be improved by the application of marl, the writer proceeds to tell of the profits that may accrue from its use and adds:

I wonder that the gentlemen of Staffordshire of our intimate acquaintance, that have so much land fit, (of mine own knowledge) for this purpose, should so far neglect their own advantage as not to send for skilful searchers for marle out of our county, which if succeeding, would be incomparably above their liming for durableness, and perhaps in some places far less costly. I am confident that I saw marle there at a brook side, and little doubt, but by search of skilful persons, a good quantity might be found; but how much, how good, or how conveniently it lies, cannot be resolved without search, neither there nor here. He that will not run such a poor hazard as that, is not worthy of so much gain.

There are other contributions from Mr. Martindale, of Cheshire, in this same volume on the manner of getting the marl out, the different kinds of it, the kind of lands which usually abound in it, the method of using it, etc.

John Evelyn, in his day a recognized authority on landscape gardening and best known to us as the author of *Sylva* and *Pomona*, appears often; sometimes as a contributor and sometimes as the author of a work under discussion. Under date of January 16, 1682, he makes a nine-page contribution entitled—

An account of bread from the learned John Evelyn, Esq.; entitled *Panificium* or the several manners of making Bread in France where by universal consent the best bread in the world is eaten.

This article contains a number of recipes for bread and numerous sage observations, such as:

The whiter the flower, the less goodness in taste.

Some make bread (as about Rouen in Normandy) without at all sifting the bran, as it comes from the mill; this at first eating seems to be rough and harsh, but by custom it is both pleasant, and wholesome and very strengthening.

This Collection of Letters for the Improvement of Husbandry and Trade, as the 1681-83 volume is called, contains many observations and contributions which indicate that the author interpreted "husbandry and trade" very broadly. A few of these we will mention by title.

An essay to prove that it is better to have Ireland rich and prosperous than poor and thin.

Some considerations upon the proposals approved on by the city of London for subscriptions upon lives wherein are some observations and conjectures upon the East-Indian Company and bankers.

This last is a life-insurance scheme with the death probabilities carefully worked out by 10-year periods. This volume also contains lists of goods imported and exported with quantities and dates; also the number of outgoing and incoming ships with destination and port of departure carefully given.

There is an account of a new method of plowing with careful drawings so that the "wayfaring man though a fool, can not err therein." There are "Directions in the making of colonies for Bees, by a new invented model of Hive, to improve them, whereby without killing may be enjoyed the fruit of their labour."

This entire volume four of "letters," 1681-1683, can not, however, be considered in the accurate meaning of the term a periodical, as the communications were issued irregularly and without apparent plan. The three volumes which are introduced by the Bradley preface, however, can unquestionably be considered a periodical. They began on Wednesday, March 30, 1692, and were issued once a week on Wednesdays through the rest of the year. There was issued also, beginning Saturday, April 30, a paper each Saturday, extracted from the customhouse bills, which gave the name and quantity of goods imported and exported "in order that trade may be better understood and the whole Kingdom made one trading city." These Saturday papers were numbered consecutively with the Wednesday papers, so that through June 25, 1692, Husbandry and Trade Improved was issued twice a week. Occasionally more than one number was published on the date of issue. Thus, Nos. 19 and 21 each is dated June 11, 1692. No. 23 is dated June 25, 1692; and No. 24, January 20, 1693. The author explains this hiatus as being the result of pecuniary difficulties; "but now having a contribution of a guinea a year from some gentlemen and expecting it from more, I go on, and shall sell them for a penny each." Houghton does not give the names of the "gentlemen" who believed enough in the value of his undertaking to give him a guinea apiece, but we can guess them pretty well from the signatures to the "testification" dated November 11,

1691, which was included in the first issue of the modest little periodical. It was as follows:

NOVEMBER 11, 1691.

These are to testify our knowledge of the approved abilities and industry of Mr. JOHN HOUGHTON, citizen of LONDON, and fellow of the ROYAL SOCIETY there, in the discovery and collection of matters worthy observation, and more particularly such as relate to the improvement of HUSBANDRY and TRADE. Towards his furtherance wherein, and in his laudable inclination already experienc'd, and now further design'd, to the communicating the effects thereof to the publick; we do hereby most willingly give him this testimony of our knowledge and esteem, in order to the recommending him to the notice, assistance, and encouragement of all gentlemen and others, desirous of promoting the endeavours of a person so qualify'd and dispos'd to the service of his country.

Robert Southwell.
Thomas Meres.
John Hopkins.
Peter Pett.
Anthony Deane.
John Evelyn.
Thomas Henshaw.
Abraham Hill.
Samuel Pepys.
John Creed.
Thomas Gale.
John Scott.
Robert Plot.
Daniel Cox.

Nehemiah Grew.
Edward Tyson.
Frederick Slare.
Robert Pitt.
Hans Sloane.
Hugh Chamberlen.
William Hewer.
Henry Whistler.
Alexander Pitfield.
Richard Waller.
Edward Haynes.
Thomas Langham.
Francis Lodwick.
Edmund Hally.

These things, consider'd, such like may be expected, at least *once a week*, from

England's hearty well-wisher,
JOHN HOUGHTON, F. R. S.
WEDNESDAY.

It is very significant of their breadth of vision that such men as Samuel Pepys, the brilliant diarist; Edmund Halley, the astronomer, at that time secretary of the Royal Society; Hans Sloane, founder of the Botanic Garden, whose collections formed the nucleus of the British Museum—that such men as these should recognize the fundamental importance of agriculture to England's best interests.

The list contains the names of various officers of the Royal Society, John Hopkins, at one time its president; Abraham Hill, treasurer; Robert Plot, Edmund Halley, and Nehemiah Grew, secretaries.

Varied interests also are represented. Anthony Deane was a ship-builder and a great friend of Pepys; Thomas Henshaw was a charter member of the Royal Society, and a scholar, having written a history of China; John Creed was deputy treasurer of the Fleet, Thomas

Gale was dean of York and a biblical scholar of note; John Scott was probably the canon of St. Pauls, although, as there were several John Scotts living, one can not be sure which one he was; Daniel Coxe, Hugh Chamberlen, Robert Pitt, Frederick Slare, and Edward Tyson were physicians, the latter having written several monographs on animals. Nehemiah Grew was a vegetable physiologist, and by some considered the first observer of sex in plants. His work was recognized by Linnaeus who named a genus after him. Edmund Halley, besides being an astronomer, is thought to have originated by his suggestion Newton's Principia, which he introduced to the Royal Society.

The papers abound in sage observations as well as sound doctrine on agricultural matters, as, for instance, when Houghton remarks at the end of a comprehensive argument on the advantage of inclosures over commons: "The ground is never weary of doing good, if well fed and well worked."

Houghton's observations on the potato are especially interesting as the field cultivation of the plant began about the time Houghton wrote, or from 1680 to 1690. He said in number 386, December 15, 1699:

"*Potatoe* is a *bacciferous* herb, with *esculent* roots, bearing winged leaves and a *bell* flower.

This I have been inform'd was brought first out of *Virginia* by *Sir Walter Raleigh*, and he stopping at *Ireland*, some was planted there, where it thrived very well to good purpose; for in their succeeding wars, when all the corn above-ground was destroyed, this supported them; for the soldiers, unless they had dug up all the ground where they grew, and almost sifted it, could not extirpate them; from thence they were brought to *Lancashire*, where they are very numerous and now they begin to spread all the kingdom over.

They are a pleasant food boil'd or roasted, and eaten with butter and sugar.

There is a sort brought from *Spain* that are of a longer form, and are more luscious, than ours; they are much set by, and are sold for six pence or eight pence the pound.

Whether these differ more than what is caused by the different soils they grow in, I know not.

They are easily increased by cutting the root in several pieces; for each piece will grow. They require a good fat garden mold, but will grow tolerably in any. Surely in some places it may be worth while to plant abundance, if it were only to feed their cattle and poultry. I believe the more husbandries we have the better."

It is utterly impossible, however, to give an accurate idea of the mingled quaintness and sagacity of these papers without an undue amount of quotation, and it seems best to reproduce Houghton's "Epitome of the 19 volumes.¹ A farewell," with which he brings

¹ Houghton refers to his work by volume numbers but the separate issues have consecutive numbers only.

the work to a close, rather than to make quotations at random. This "epitome" is dated September 24, 1703, and gives a very fair summary of the contents of the volumes, but with the exception of the last three paragraphs, lacks entirely the zest and vigor of the papers themselves. It is as follows:

In my first volume is the nature of *earth, water, air and fire*, with their effects and reasons for many of their operations: In my second, *natural history*, with the *taxes, acres, houses*, etc. in each county of *England and Wales*, with notes particularly of *Yorkshire and Derbyshire*: In my third the doctrine of *fermentation*, history of cyder and clay: In my fourth, a continuation of *clay*, and all its uses I could learn, with the history of *wheat*: In my fifth, the history of *joint-stocks and kine*: In my sixth, I went on about kine, showing the use and manufacture of most parts, the doctrine of *nutrition, circulation* of the blood, with reasons of its ascent, and manner of growing of *bones* and other parts: In my seventh, I have carried on the history of *kine* in discourses upon *blood, butter, cheese, cows, cream, dung, milk, urine, whey*, and other particulars: In my eighth, is an account of the ships that came from abroad to *London* from *new year's day*, 1694 to the same day 1695, with the number from each prince's territories, and of all the goods imported that year, mentioned in the bills of entry, with the quantities from each place, and all together.

Upon these I have made some notes *natural* and *political*, as the advantages of a *coalition* with *Scotland*, the true case of *free-trade, a regulated company* and a *joint-stock* with an easy and certain method for mending the roads, etc. In my ninth, are histories of imported *stones, glass, salt*, and a farther account of roads: In my tenth, a farther account of *salt*, the history of *nitre, gunpowder, profits* of the *Indian* trade, history of *vitriol, copperas, brimstone, oker, jett* and *coal*: In my eleventh, are the farther histories of *coal*, also of *arsenick, lapis, hæmatities* and the 7 metals, with a description of all things I could learn were made from them, with some discourses about *air, alkali, colours, exchange, fire*, the manner of fluxing with *mercury, money, poison, trade, pumps*, and *wood*. In my twelfth, I have given a division of plants, the history of *mushrooms, wheat, rye, barley, oats, canes, and sugar*, with all the historical and political notes relating to them I could think proper; as the *quantum* of *beer* and *ale* that paid excise in divers years, the quantity of malt brought from *Ware* by water in a year, with a discourse about navigable rivers, and making them so: the difference about water and land carriage, with the quantities of *sugar* and other things imported. In my thirteenth, I have given the history of *saffron, onions, tuberoses, asarum, ros solis, gentian, aloe*, with the manner of embalming and managing the dead in many countries; the history of *kelp, madder, spurry, rhubarb, buckwheat, hemp, and flax*: As also the history of *linen, thread, tape, lace, twine, dying, printing, maps, pictures, oil-cloth, buckrams, pasteboard, playing-cards, rags, paper-hangings*, the *printer's office* with the life of *Bleau*, &c. In my fourteenth, is the history of *hops, weld or wood, annise, turnips, carrots, parsnips, caraway-seeds, pellitory* of *Spain, polymountain, dittany, teasel, coloquintida, scammony, tobacco, birthwort, potato*, and the *vine*; with a proposal how to enrich *England* and employ the poor. In my fifteenth, is the history of *jessamine, capers, pomgranates, oranges, lemons, plumbs, prunellos, prunes, olives*, with a proposal to preserve health in hot plantations; also of the *turpentine* and *fir-tree, mastich, clove, nutmeg cinnamon, bay, yew, holly, juniper, sassafras, walnut, almond, hazel, chestnut, beach, cacao or chocolate*, and *coffee*. In my sixteenth, is the history of *cotton* and the

oak, and all things I could think useful to say of it; particularly demonstrative arguments for the destruction of *wood* and the proposal how we shall never want naval stores. In my seventeenth, is the history of *alder*, *cedar*, *cypress*, *elm*, *ash*, *maple*, *birch*, *aspen*, *poplar*, *abele*, *willow*, *lime-tree*, and *guaiacum* or *lignum vitæ*. In my eighteenth, is a history of *bees*, *silkworms*, *oysters*, *fish*, as *whales*, *sturgeon*, *codfish*, *mackerel*, *herrings*, *sprats*, *pilchards*, *anchoveys*, *turbets*, *salmons*: Also an account of the *fishing-trade*, with proposals how to improve it both at home and abroad. In my nineteenth, is a history of *birds*, viz. *eagles*, *hawks* and *falconry*, *woodcocks*, with a conjecture how birds fly over sea. The *estrich*, with the manner of taking fowl in the *Islands of Feroe*, *Hirta*, and *Stacka Donna*, with the strange and difficult manner of climbing rocks by those inhabitants: and having also gone thro' the principal histories of the *mineral*, *vegetable* and *animal* kingdoms, except *beasts*, of which I have only given the history of *kine*, but that I have done very largely, and designed to have carried on this twentieth volume with the histories of the *horse*, *sheep*, *goat*, *stag*, *hog*, *coney*, *castor*, *dog*, &c and then have given over.

But truly, since (beside my trade as an *apothecary*, wherein I have always been and still am diligent) I have fallen to the selling of *coffee*, *tea* and *chocolate* in some considerable degree, I cannot without great Inconvenience to my private affairs, which must not be neglected, spare time to carry on this history so well as I would do; and besides considering what the antients have done in this affair, as also the moderns, viz. Mr. *Ray*, *Blundevill*, *Markam*, *Solleysel*, in his *Compleate Horseman*, and divers others, I refer it to some that has more leisure and skill; altho' I have endeavoured to make it the best account of *trade* upon the best and most sure foot that ever has yet been published, and I could hear of. And all this I have done for the benefit of my country; not doubting but if those in authority will consider, and apply what I have writ for *England's* advantage, It may quickly be made the richest and happiest nation the sun sees.

But if these things are not, or will not be understood, I'll no ways fret myself, well knowing that I fare as well as a great many *persons*, whose *charms* are not heard, tho' they *charm* ever so wisely.

I most humbly and heartily thank all sorts of my assistants, and shall testify my respects to them whenever I have opportunity; and I must particularly say, for a great many of the *Royal Society*, that they have been genteel, kind, and ready to *communicate* most knowledges I have asked them, in their power; without which, I own, I could not have carried on a great deal of what I have written.

Thus I take leave of these papers, wishing that *knowledge* may cover the *earth* as the *water* covers the *sea*, which is the hearty prayer of the World's well wisher,

JOHN HOUGHTON, F. R. S.